

Page 5, line 15, replace "then" with --than--.

Page 6, line 10, replace "ehtanol" with --ethanol--.

In the Claims:

Cancel claims 2-28.

SECOND PRELIMINARY AMENDMENT

After the filing fee has been calculated and after copendency has been established, please amend the application as follows:

In the claims:

Cancel claim 1.

Please add the following new claims:

29. A layered structure for use in manufacturing a cathode for a field emission display (FED) comprising a dielectric layer and a silicon layer formed over the dielectric layer, the silicon layer having an electropositive element diffused therein and extending down to an interface between the dielectric layer and the silicon layer.

30. The structure of claim 29, wherein the electropositive element is selected from the group consisting of H, Li, Be, B, Na, Cs, Mg, Al, Ga, Ba, Rb, Ca, K, Sr, and In.

31. The structure of claim 29, wherein the distribution of the electropositive element in the silicon layer is substantially even.

32. The structure of claim 29, wherein the structure is provided in a liquid solution including one of Na and Cs.

33. A field emission display comprising:
an anode;
a cathode;
the anode and the cathode sealed together and spaced apart to define an evacuated space therebetween;
a plurality of electron emitters located on the cathode, each of the emitters having tips for emitting electrons to the anode, the emitters being made of silicon and having an electropositive element both throughout a body of the emitters and at a surface of the emitters.

34. A display as in claim 33, wherein the distribution of the electropositive element in the body of the emitters is substantially even.

35. A display as in claim 33, wherein the electropositive element is chosen from Group IA of the periodic table.

36. A display as in claim 33, wherein the electropositive element comprises Cs.

37. A display as in claim 33, wherein the electropositive element is chosen from a group consisting of H, Li, Be, B, Na, Mg, Al, Ga, Ba, Rb, Ca, K, Sr, and In.

38. A display as in claim 33, wherein the electropositive element is chosen from Group IIA of the periodic table.

39. A display as in claim 33, wherein the electropositive element is chosen from Group IIIA of the periodic table.

40. A cathode for a display device comprising:
a substrate;
a plurality of electron emitters on the substrate and made from silicon, the emitters having a relatively wide base on the substrate and tapering to a tip away from the substrate; and
an electropositive element diffused in the emitters so that the electropositive element extends from the tip to the base, and wherein there is a significant amount of the electropositive element at the base.

41. A cathode as in claim 40, wherein the distribution of the electropositive element in the body of the emitters is substantially even.

42. A cathode as in claim 40, wherein the electropositive element is chosen from Group IA of the periodic table.

43. A cathode as in claim 40, wherein the electropositive element comprises Cs.

44. A cathode as in claim 40, wherein the electropositive element is chosen from a group consisting of H, Li, Be, B, Na, Mg, Al, Ga, Ba, Rb, Ca, K, Sr, and In.

45. A cathode as in claim 40, wherein the electropositive element is chosen from group IIA of the periodic table.

46. A cathode as in claim 40, wherein the electropositive element is chosen from group IIIA of the periodic table.

47. A cathode as in claim 40, the cathode further comprising an additional layer of silicon over the electron emitters to protect the electropositive element.

48. The cathode of claim 40, wherein the concentration of the electropositive element decreases from the tip to the base.

In the Drawings:

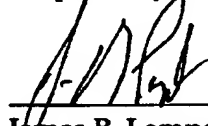
Please substitute the enclosed one sheet of formal drawings (Figs. 1-3) for those informal drawings filed herewith.

Remarks

Favorable examination is respectfully requested.

Dated: January 21, 2000

Respectfully submitted,



James B. Lampert
Registration No. 27,564
Attorney for Applicants

Hale and Dorr LLP
60 State Street
Boston, MA 02109
Tel: (617) 526-6000
Fax: (617) 526-5000